

Dietary Intake of Folate and Related Micronutrients, Genetic Polymorphisms in *MTHFR* and Colorectal Cancer: A Population-Based Case-Control Study in Scotland. L. Sharp,* J. Little,* N. Brockton,*[†] S. C. Cotton,* N. E. Haites[†] and J. Cassidy.** *Epidemiology Group, [†]Medical Genetics and **Oncology Group, Department of Medicine & Therapeutics, University of Aberdeen, Aberdeen, Scotland.

Colorectal cancer is the third most common cancer in males and the second most common in females in developed countries. High vegetable intake is associated with reduced colorectal cancer risk. Vegetables are a major source of folate. Intakes of folate and related vitamins are relatively low in Scotland. There are functional polymorphisms in the methylenetetrahydrofolate reductase gene (*MTHFR*) that controls folate metabolism. These may be of public health relevance for conditions in which folate is etiologically important. We present results from a population-based case-control study of folate, related micronutrients, *MTHFR* and colorectal cancer. Eligible cases were northeast Scotland residents with histologically confirmed colorectal cancer diagnosed from September 1998 through February 2000. Control subjects were selected from National Health Service registers in the same area. Subjects completed a semiquantitative food-frequency questionnaire and provided a mouthwash DNA sample. C677T and A1298C polymorphisms were determined by polymerase chain reaction methods. Dietary data were converted into estimated nutrient intake and analyzed in quartiles, adjusted for total energy; 264 cases (62% of those eligible) and 408 controls (61%) participated. Overall, there was no association between dietary folate intake and colorectal cancer risk. For women, risk was reduced in the highest quartile [Q4 vs. Q1: odds ratio (OR) = 0.54, 95% confidence interval (CI) = 0.26–1.12]. The inverse was found in men. Patterns were inconsistent for other B vitamins. For C677T, compared with homozygous wild types, risk was modestly reduced for heterozygotes (OR = 0.93; 95% CI = 0.66–1.32) and TT homozygotes (OR = 0.72; CI = 0.41–1.29). For A1298C, compared with homozygous wild types, the OR for heterozygotes and CC homozygotes were 1.14 (0.80–1.64) and 0.67 (0.39–1.29), respectively. Genotype results were heterogeneous by cancer site and age. Interactions between dietary factors and genotype have been considered. For genotype, results had some consistency with other studies. For folate, the difference between the sexes, if confirmed, could have implications for the proposed fortification of food with folic acid in the United Kingdom.

Lung cancer

Low Fruit and Vegetable Intake Exacerbates the Risk of Lung Cancer Associated with Residential Radon Exposure. M. E. Wright, S. T. Mayne and M.C.R. Alavanja.* Yale University School of Medicine, Department of Epidemiology and Public Health, New Haven, CT and *Division of Cancer Epidemiology and Genetics, National Cancer Institute, Rockville, MD.

Effects of fruit and vegetable consumption on the association between residential radon exposure and lung cancer risk were examined using data from a population-based case-control study of lung cancer in Missouri women, most of whom were current or former smokers. Data were available for 356 newly diagnosed lung cancer cases and 470 controls frequency matched to cases on the basis of age. A modified food-frequency questionnaire was used to obtain information about

usual diet 2–3 y before the interview. Twenty-year, time-weighted, average residential radon concentrations were assessed with CR-39 α -particle detectors (surface monitors), which appear to capture cumulative radon exposure more accurately than do standard indoor air radon detectors. Women exposed to high radon levels (greater than the median vs. less than or equal to the median value of the controls) had a significantly elevated risk of lung cancer in models adjusted for age, packyears of smoking, education level and previous lung disease [odds ratio (OR) 1.43, 95% confidence interval (CI), 1.07–1.92]. In stratified analyses, low consumption of several plant food groupings exacerbated the risk of lung cancer associated with high residential radon exposure. For example, the OR for high vs. low radon exposure was 1.66 (95% CI, 1.11–2.49) in women with low total vegetable, fruit and juice consumption and 1.15 (95% CI, 0.75–1.78) in women with high total vegetable, fruit and juice consumption. Joint effects of radon exposure with consumption of individual plant food groupings were not significant, however, in multiplicative interaction models. These results suggest that non-smoking and smoking women exposed to high levels of residential radon may have an even higher risk of lung cancer if they consume inadequate amounts of fruits and vegetables.

Prostate cancer

Feasibility and Efficacy of Low-Intensity Diet and Exercise Counseling for Overweight Men with Active Prostate Cancer. E. C. Miller, T.W.-M. Boileau,* T. Bray,* S. Schwartz[†] and S. K. Clinton. Department of Internal Medicine, Division of Hematology and Oncology, James Cancer Hospital and Solove Research Institute, Columbus, OH and *Department of Human Nutrition and [†]Department of Food Science and Technology, Ohio State University, Columbus, OH.

Men with asymptomatic, metastatic prostate cancer based on a rising prostate-specific antigen (PSA) level after local therapy are highly motivated to initiate low risk interventions to inhibit the progression of their disease. This population presents an opportunity for dietetics professionals to counsel patients on scientifically based dietary and life style changes that may affect prostate cancer progression. We enrolled 11 overweight men [ages 58–79 y, body mass index (BMI) 25.0 kg/m², mean BMI = 31.5 \pm 3.1 kg/m²] who had completed primary treatment for prostate cancer and had evidence of metastatic disease based on progressive rises in their PSA levels. The men were monitored for 9 wk, with dietary and exercise counseling occurring at enrollment and at wk 1 and 5. The goals of dietary counseling were based on American Institute for Cancer Research, National Cancer Institute and American Heart Association dietary guidelines for health promotion, including consuming at least 5 fruit and vegetable servings per day; increasing dietary fiber (>20 g/d); reducing total fat (<30% total energy), saturated fat (<10% total energy) and cholesterol (<300 mg/d); and energy restriction (to promote weight loss of 2.2 kg/wk). The goals for exercise counseling were based on the American College of Sports Medicine and the Centers for Disease Prevention and Control public health guideline encouraging 30 min of physical activity on most days of the week. Three-day diet records were completed at enrollment and midstudy and were analyzed with Diet Analysis Plus software (Wadsworth Publishing Group, Belmont, CA) and SPSS software (SPSS Chicago, IL). Physical activity was assessed by recall at each clinic visit. Weight loss was achieved in 8 of the 11 men. Average weight change